while with Canada field peas it was saccharose, glucose, maltose. lactose. Timothy was found to utilize lactose when grown in darkness, but not when grown in light. The influence of the sugars upon the rate of respiration in the vetch was observed, with the result that saccharose, glucose, and maltose accelerate respiration very noticeably, the latter somewhat less than the other two. Galactose was found to be toxic to wheat, peas, corn, and vetch, even at low concentrations; while glucose antagonizes the toxicity of galactose, possibly by rendering the roots impermeable to galactose, or by altering galactose metabolism in such a way as to prevent formation of toxic oxidation products. The author suggests as a general conclusion that soluble organic substances produced from humus during decay may play a more important rôle in the organic nutrition of plants than we have hitherto thought.—CHARLES A. SHULL.

Osmotic pressure in parasite and host.—Using the cryoscopic method, HARRIS and LAWRENCE[28] have studied the osmotic relations between 7 species of Jamaican mistletoes and their 19 hosts. They find that the sap concentration of the chlorophyllous tissues of the parasite is nearly always higher than that of the mature leaves of the host, the parasites showing an average concentration equivalent to 14.43 and the hosts to 13.59 atmospheres of osmotic pressure. This relationship is not a necessary one, however, for in several cases the parasites possessed sap of a lower concentration than their hosts. In such cases it is assumed that the host supplies more than sufficient water to meet its own needs, so that the parasite is not in direct competition with the leaves of the host, but merely secures water from the same transpiration stream. In cases of secondary parasitism, the osmotic pressure increases from host to primary and from primary to secondary parasite. The sap from the stems of leafless species of *Dendrophthora* possesses a lower concentration than that from leaves of species of *Phoradendron* and *Phthirusa*. The meaning of this is not discussed. It may involve differences in the rate of photosynthetic activity in the leafless and leafy forms.—CHARLES A. SHULL.

Galls.—ESSIG[29] calls attention to the introduction of the chrysanthemum gall fly from Europe. This pest was not known in the United States previous to 1915. It causes cone-shaped galls which often distort the shoot beyond recognition, and eventually causes death of the infected parts. It sometimes destroys one-third of the crop.

WELLS[30] gives us a very important study o the galls of the blackberry The purpose of the paper is threefold: (1) a study of the histology of the galls;

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[28] HARRIS, J. ARTHUR, and LAWRENCE, JOHN V., On the osmotic pressure of the tissue fluids of Jamaican Loranthaceae parasitic on various hosts. Amer. Jour. Bot. **3**:438–455. 1916.

[29] ESSIG, E. O., The chrysanthemum gall fly, *Diarthronomyia hypogaea* F. Low. Jour. Econ. Ent. **9**:461–468. 1916.

[30] WELLS, BERTRAM W., The comparative morphology of the zoocecidia of *Celtis occidentalis*. Ohio Jour. Science **16**:249–290. *pls. 8*. 1916.